




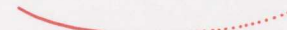
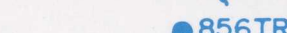

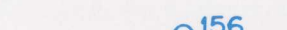
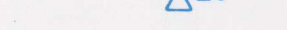

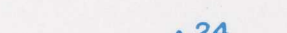




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CONTACT
ANTICLINE
Showing axial plane trace and direction of plunge
SYNCLINE
Showing axial plane trace and direction
BASE OF UPPER FREEPORT COAL
BASE OF LOWER FREEPORT COAL
BASE OF LOWER KITTANNING COAL
Structure contour altitude in feet above mean sea level. Contour interval 20 feet.
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WATER WELL AND COUNTY WELL NUMBER
SPRING AND COUNTY SPRING NUMBER
WELL - Landowner used for ground-water testing. Letters indicate types of tests conducted: T, hydraulic test; F, continuous water-level recorder; G, geophysical logging. All wells except NT, NTZ, INGO, INGE, INGS, INGS, and INBS were sampled for water-quality analysis.
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LANDOWNER WELL SAMPLED FOR WATER-QUALITY ANALYSIS
CONTINUOUS-RECORD STREAMFLOW GAGING STATION AND SITE NUMBER
MISCELLANEOUS SURFACE-WATER SITE AND SITE NUMBER
U.S. GEOLOGICAL SURVEY PRECIPITATION SITE - South Branch Plum Creek
NATIONAL WEATHER SERVICE PRECIPITATION SITE - Indiana

EXPLANATION				
DESCRIPTION OF MAP UNITS				
	Unit	Geologic description	Well yields	Quality of water
Carboniferous	Alluvium	Unconsolidated deposits of gravel, sand, silt, and clay that occupy the flood plains of streams and, in some places, form low terraces above the floodplain.	One inventoried well has a yield of 50 gallons per minute.	Field data indicate good quality water.
	Carboniferous (Cqm) Formation	Unconsolidated deposits of sand, gravel, silt, clay, and coarse sandstone. The Carboniferous River and Crooked Creek.	No data, but deposits are thin and unlikely to be productive.	No data available.
Jurassic	Dixonsville Dike Jk	Mica-peridotite dike, the only igneous rock found in Indiana County.	No data available.	No data available.
	Monongahela Fm Group	Blue-gray limestone, gray to dark gray shale, and sandy shale. Thin bedded to massive gray, fine to medium-grained sandstone, carbonaceous shale, and coal.	Yields are low, 1-5 gallons per minute. The low yields are probably consequence of desaturation by extensive deep mines.	On the basis of limited data, water is hard and may be high in manganese.
Pennsylvanian	Casselman Formation Pcc	Thin-bedded, green and red, commonly carbonaceous claystone, locally massive fine to coarse grained gray sandstone, fresh water limestone, and fine, non-persistent coal.	Reported yields range from 2 to 50 gallons per minute. The median is 30 gallons per minute.	Water is generally hard to very hard, and may have extensive concentrations of iron and manganese.
	Glennville Formation Pcg	Oliver-gray to dark-gray, thin bedded sandstone, limestone and clay shale, red claystone, locally massive fine to coarse grained sandstone near the base, a few thin water limestone, and generally thin coals.	Reported yields range from less than 1 gallon per minute to 100 gallons per minute. Nonconsolidated median yield is 20 gallons per minute.	Water is commonly moderately hard to hard, iron and manganese exceed standards in more than half of the wells tested.
Potomac Group	Allegheny Group Pa	Oliver-gray to gray to dark-gray clay shale, thin bedded, locally massive fine to medium grained sandstone near the base, a few thin water limestone, and generally thin coals.	Reported yields range from less than 1 gallon per minute to 10 gallons per minute. Nonconsolidated median yield is 13 gallons per minute.	Most water is hard to very hard, iron and manganese exceed standards in more than half of the wells tested.
	Pottsville Group Pp	Clay to light gray crossbedded sandstone, quartz-pebble conglomerate, and alternate, dark-gray carbonaceous clay shale and claystone, and thin, non-persistent coal. Massive beds of sandstone are not uncommon.	No data available.	No data available.
Mississippian	Mechanic Chert Formation Mnc	Grayish-red shale, alternate, sandstone and some conglomerate, with some non-red zones.	No data available.	No data available.
	Loyalhanna Mm	Highly crossbedded, gray siliceous limestone.	No data available.	No data available.
Devonian	Burgess Mb	Buff, medium-grained crossbedded sandstone with some conglomerate at its base.	No data available.	No data available.
	Rockwell Mdr	Medium-light-gray or light-olive-gray to buff sandstone and interbedded dark shale, thin red shale and greenish shale, greenish-black, or buff black marine shale.	No data available.	No data available.